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EXAMINER	
GARG, YOGESH C	

ART UNIT	PAPER NUMBER
3625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/737,035	JOHNSON ET AL.	
	Examiner	Art Unit	
	Yogesh C Garg	3625	MW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2000*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1. Claims 1-7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

1.1. **Claimed Invention(s) does not fall within the Technological Art.**

As an initial matter, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See In re Musgrave, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter

covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See Diamond v. Diehr, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See State Street Bank & Trust Co. v. Signature Financial Group, Inc. 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See In re Toma, 197 USPQ (BNA) 852 (CCPA 1978). In Toma, the court held that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to Gottschalk v. Benson, 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. In re Toma at 857.

In Toma, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

The decision in State Street Bank & Trust Co. v. Signature Financial Group, Inc. never addressed this prong of the test. In State Street Bank & Trust Co., the court found that the

"mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather, statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See State Street Bank & Trust Co. at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the patent's claims are too broad to be patentable is not to be judged under °101, but rather under §§102, 103 and 112." See State Street Bank & Trust Co. at 1377. Both of these analysis goes towards whether the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, State Street abolished the Freeman-Walter-Abele test used in Toma. However, State Street never addressed the second part of the analysis, i.e., the "technological arts" test established in Toma because the invention in State Street (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the Toma test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See Ex parte Bowman, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

In the present application, Claims 1-7 have no connection to the technological arts. None of the steps indicate any connection to a computer or technology. The step of defining clusters, receiving expert opinion, checking and reconciling values, selecting attributes, classifying, identifying clusters, etc., as claimed, in broad sense can be implemented manually with out the use of a novel technological arts. Therefore, the claims are directed towards non-statutory subject matter. To overcome this rejection the Examiner recommends that Applicant amend the claims to better clarify which of the steps are being performed within the

technological arts, such as incorporating a computer network or electronic network/computerized hardware/software into the communicating steps.

1.2. **Claimed inventions lack practical application of a mathematical algorithm.**

Claim 1 recites manipulative steps, " defining clusters, receiving expert opinion, checking values and reconciling the values.

The claimed invention however fails to produce "useful, concrete, and tangible result" and therefore lacks a practical application. The claimed invention merely performs defining clusters, receiving expert opinion, checking values and reconciling the values but does not recite any practical application resulting from those steps. Therefore, the claimed invention is not concrete because it fails to produce a practical application as required under 35 U.S.C. 101 and therefore the claims are analyzed as non-statutory subject matter. Since claims 2-8 are dependencies of claim 1 they will inherit the deficiency of claim 1 and are therefore analyzed and rejected on the same rationale as claim 1. Similarly, claims 9-24 are analyzed and rejected on the same basis as claims 1-8.

The above analysis supported by court ruling per State Street Bank & Trust Co. v. Signature Financial Group Inc., 149 F. 3d 1368, 1374, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998). See MPEP 2106 II A: Identify and Understand Any Practical Application Asserted for the Invention. The claimed invention as a whole must accomplish a practical application. That is, it must produce a "useful, concrete and tangible result." State Street, 149 F.3d at 1373, 47 USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (Brenner v. Manson, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); In re Ziegler, 992, F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). However, the mere fact

that the claim may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a "useful, concrete and tangible" result to have a practical application.

The above rejection is also supported by MPEP 2106 IV.B.2.b (ii): Computer-Related Processes Limited to a Practical Application in the Technological Arts: There is always some form of physical transformation within a computer because a computer acts on signals and transforms them during its operation and changes the state of its components during the execution of a process. Even though such a physical transformation occurs within a computer, such activity is not determinative of whether the process is statutory because such transformation alone does not distinguish a statutory computer process from a nonstatutory computer process. What is determinative is not how the computer performs the process, but what the computer does to achieve a practical application. See Arrhythmia, 958 F.2d at 1057, 22 USPQ2d at 1036.A process that merely manipulates an abstract idea or performs a purely mathematical algorithm is nonstatutory despite the fact that it might inherently have some usefulness. In Sarkar, 588 F.2d at 1335, 200 USPQ at 139, the court explained why this approach must be followed:

No mathematical equation can be used, as a practical matter, without establishing and substituting values for the variables expressed therein. Substitution of values dictated by the formula has thus been viewed as a form of mathematical step. If the steps of gathering and substituting values were alone sufficient, every mathematical equation, formula, or algorithm having any practical use would be per se subject to patenting as a "process" under 101. Consideration of whether the substitution of specific values is enough to convert the disembodied ideas present in the formula into an embodiment of those ideas, or into an application of the formula, is foreclosed by the current state of the law.

For such subject matter to be statutory, the claimed process must be limited to a practical application of the abstract idea or mathematical algorithm in the technological arts. See Alappat, 33 F.3d at 1543, 31 USPQ2d at 1556-57 (quoting Diamond v. Diehr, 450 U.S. at 192, 209 USPQ at 10). See also Alappat 33 F.3d at 1569, 31 USPQ2d at 1578-79 (Newman, J., concurring) ("unpatentability of the principle does not defeat patentability of its practical applications") (citing O 'Reilly v. Morse, 56 U.S. (15 How.) at 114-19). A claim is limited to a practical application when the method, as claimed, produces a concrete, tangible and useful result; i.e., the method recites a step or act of producing something that is concrete, tangible and useful. See AT &T, 172 F.3d at 1358, 50 USPQ2d at 1452.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1, 9, and 17 recite the limitations, "checking values for combinations of attributes; and reconciling the values. It is unclear if the term " values " refers to the values received in expert opinion or they stand alone values resulting differently from combination of attributes. If the later is true then the term " combination of attributes lacks sufficient antecedent basis, because the earlier recited context relates to clusters of common attributes. It is not clear if the applicant purports by the term " combination of attributes" to combination of clusters. Further, it is not clear which values, that is received in the expert opinion or the

checked values are to be reconciled. It is also not clear how reconciliation is carried out, that is, reconciled against which values for accuracy. Since claims 2-8, 10-16, and 18-24 are dependencies of claims 1, 9, and 17 they will inherit the same deficiencies and are therefore also rejected. In view of this indefiniteness and as best understood by the examiner the limitations ""checking values for combinations of attributes and reconciling the values", would be interpreted as assessing and reassessing the values of financial instruments.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Freeman et al. (US Pub. No: 2001/0029477); hereinafter, referred to as Freeman.

Regarding claim 1, Freeman discloses a method for automated underwriting of segmentable financial instrument assets using a portfolio valuation system (see at least page 1, paragraph 0003, " *Banks underwrite loans and/or purchase loan portfolios of other banks or sell portions of their own loan portfolios. In doing so, banks customarily continually assess and reassess the quality of various loan portfolios, which quality depends on the interest rates earned on those loans, the*

customer payment history on the loans and other criteria. ". Note: loans correspond to financial instruments), said method comprising the steps of:

defining clusters of financial instruments by common attributes (see at least paragraph 0009 on page 1, " *a portfolio of loans representing mortgages granted in* ***a particular locality*** *during* ***a particular time frame*** *might be deemed to represent high quality loan instruments, as for example in the situation where the history of these groups of loans has shown that the rate of default for that group of loans has been extremely low and the interest rate on those loans is high compared to present interest rates.....* ". Note: grouping loans by a particular locality or a particular time frame corresponds to defining the cluster of loans by common attributes, such as ***a particular locality*** *or* ***a particular time frame***);

receiving an expert opinion of value from selected samples of the clusters (see at least paragraph on page 1, "*.....a shrewd bank manager might see future value in a presently poorly performing loan portfolio and seek to buy at its current low price structure for its potential improvement. ..... A bank might wish to sell off the ownership component of such a loan portfolio, or the servicing rights thereof, or both. Sometimes, however, a financial institution which has a "servicing" subsidiary that is being underutilized may be willing to accept loan portfolios of servicing rights considered unattractive by other financial institutions* ", paragraph 0010, on pages 1-2, " *bank managers entrusted with making the aforementioned decisions have often resorted to and relied on manual research and their intuition in their attempts to predict, manage and select loan portfolios for ownership and servicing purposes ", and paragraph 0012 on page 2, " It is another object of the invention to provide a system which enhances the ability of financial institution managers to choose which mortgage and other debt instrument applications to underwrite.* " . Note: The advice received and used from bank/institution managers in deciding to buy or sell loan portfolios corresponds to receiving expert opinion on the clusters of loan portfolios, which, as analyzed above belong to a cluster of common attributes such as ***a particular locality*** *or* ***a particular time frame***);

checking values for combinations of attributes; and reconciling the values (see at least paragraph on page 0003, " *In doing so, banks customarily continually assess and reassess the quality of various loan portfolios, which quality depends on the interest rates earned on those loans, the customer payment history on the loans and other criteria.* ". Note: assessing and reassessing the quality of loans correspond to checking and reconciling values, please see analysis above under 35 U.S.C. 112, second paragraph rejection.

Regarding claim 2, the step of selecting and setting individual attributes to be used for the underwriting (see at least paragraph 0004 on page 1, and paragraph 0087 on page 8. Note: examining and considering factors such as LTV, D/I, frequency of payments past due, etc. in making decisions for granting and underwriting loans , correspond to the claimed step).

Regarding claims 3, 4, 5 and 6, the step of classifying individual assets into clusters and applying a cluster valuation to each cluster asset, desegregating values using a rule and creating a credit analyst table with the desegregated values and using the credit analyst table establish at least one asset class (see at least see at least paragraph 0009 on page 1, paragraphs 0046 and 0052 on page 4, paragraph 0063 on page 5, paragraphs 0063- 0074 and Tables I, II, III on pages 5-7, paragraph 0080 on page 7. Note: grouping of individual loans by a particular location, a particular time, payment past due by 90 days or more, loan amounts, interest rates, % of delinquency, assigning bad loans a value "1 and good loans the value "0", etc. corresponds to classifying individual assets into clusters and assigning values like "1" and "0" to bad and good loans. Individual loans correspond to individual assets. Tables I, II, and III further correspond to the claimed step of cresting a credit analyst table for one asset class, where asset class is a typical loans grouped as "Bad rate" loans.).

Regarding claim 7, step of defining clusters of financial instruments by common attributes further comprises the step of identifying clusters of assets with common characteristics using business rules (see at least paragraph 0009 on page 1, paragraphs 0046 and 0052 on page 4, paragraph 0063 on page 5, and paragraph 0080 on page 7. Note: grouping of loan portfolios by a particular location, a particular time, payment past due by 90 days or more, loan amounts, interest rates, % of delinquency, assigning bad loans a value "1 and good loans the value "0", etc. corresponds to defining clusters per common attributes as per business rules).

Regarding claim 8, step of receiving an expert opinion of value further comprises the step of evaluating the assets by computer with the assistance from an experienced underwriter (see at least paragraph 0015 on page 2, *" It is yet another object of the present invention to provide a dynamic underwriting model which is capable of being implemented in a general purpose computer.* ".Also see paragraphs 0064, 0074, 0094 and 123-125 on pages 5, 7, 9, and 10-11).

Regarding system and computer programmed claims 9-24, their limitations are closely parallel to the limitations of method claims 1-8 and are, therefore, analyzed and rejected on the same basis.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(i) "Computing discount rates for valuing bank assets"; *Clarke, David G, Mattson, Michael J, Siegel, Laurence B.* Bank Accounting & Finance. Boston: Spring 1995. Vol. 8, Iss. 3; pg. 13 and "An analysis of risk classifications for residential mortgage loans"; *Day-Yang Liu, Shin-Ping Lee*; Journal of Property Finance. Bradford: 1997. Vol. 8, Iss. 3; pg. 207 disclose evaluating financial instruments such as loans and mortgages.

(ii) US Patent 6,195,659 B1 to Hyatt discloses a method and apparatus for using clustering techniques which can be used to analyze and predict performances of financial assets.

(iii) US Patents 6,233,566 to Levine et al. and 5,995,947 to Fraser et al. disclose a method and apparatus for evaluating financial assets and trading them.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh C Garg whose telephone number is 703-306-0252. The examiner can normally be reached on M-F(8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent A Millin can be reached on 703-308-1065. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about

the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yogesh C Garg
Examiner
Art Unit 3625

YCG
March 5, 2004